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PAPER

06/14/2007

APPLICATION NO. FILING DATE ATTORNEY DOCKET NO. FIRST NAMED INVENTOR CONFIRMATION NO. 10/538,706 11/21/2005 Stephane Melen Serie 6084 3780 40582 06/14/2007 **EXAMINER** AIR LIQUIDE Intellectual Property **BUSHEY, CHARLES S** 2700 POST OAK BOULEVARD, SUITE 1800 **ART UNIT** PAPER NUMBER HOUSTON, TX 77056 1724 MAIL DATE **DELIVERY MODE**

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. Extractions of time may be available under the provisions of 37 CPR 1.136(a). In no event, however, may a reply be timely field If NO period for reply is specified above, the maintain statutory period will apply and will expire SIX (6) MONTHS from the maling date of this communication. Pathrols for exply the specified above, the maintain statutory period will apply and will expire SIX (6) MONTHS from the maling date of this communication. Pathrols for explication is the office later than three months after the maining date of this communication, even if timely filled, may reduce any extent optimism that adjustment. 3be 37 cPR 1.704(b). Status 1) Responsive to communication(s) filled on 31 March 2006. 2a) This action is FINAL 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 9-16 is/are pending in the application. 4) Claim(s) 9-16 is/are pending in the application. 4) Claim(s) 9-12 and 14-16 is/are rejected. 5) Claim(s) 1/2 claim(s) 1/3 is/are allowed. 6) Claim(s) 1/3 is/are allowed. 7) Claim(s) 1/3 is/are objected to by the Examiner. 9) The specification is objected to by the Examiner. 10) The drawing(s) filed on 16 June 2005 is/are: a captain advantage of the priority of the data and provided the priority of the data and provided to the priority of the data and provided to the priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * C) Mone of: 1) Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No. 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the Interna				
Examiner Scott Bushey 1724		Application No.	Applicant(s)	
Scott Bushey - The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. - A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. - If NO period for reply is appelled above, the maximum statutory period will apply and will expire SIX (8) MONTHS from the malling date of this communication. - Failure to reply which the set or exended period for reply is applicated between application become AbANDOVED (51 S.C. § 113) exerted patient form adjustment. See 37 CFR 1.704(b). - Status - If NO period for reply is application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. - Disposition of Claims - Alian Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. - Disposition of Claims - Alian Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. - Disposition of Claims - Alian Since this action is objected to with the application. - Alian Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Exparte Quayle, 1935 C.D. 11, 453 O.G. 213. - Disposition of Claims - Alian Since this application is objected to by the Examiner. - Claim(s) 13 Islance ablocated to accordance with the application requirement. - Application Papers - Priority under 35 U.S.C. § 119 - 10 Claim(s) 13 Islance abl		10/538,706	MELEN ET AL.	
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Art Unit: 1724

DETAILED ACTION

Drawings

1. Figures 1A and 1B should be designated by a legend such as --Prior Art--because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

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A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

Claim Rejections - 35 USC § 103

- 2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 9-11, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouquet et al taken in view of either Roland or Jounela et al.

Bouquet et al (Fig. 1) substantially disclose applicant's invention as recited by instant claims 9-11, and 14-16, except for the lower disk of the impeller having less surface area than the upper disk of the impeller, the lower disk being of a smaller diameter than the upper disk, but of a size equal to or greater than the annular space formed by the central hole in the upper disk.

Roland ((Figs. 1 and 3) or Jounela et al (Fig. 4) each disclose radial vaned impellers with upper and lower disks, wherein the lower disk has a smaller diameter and thus a smaller surface area than the upper disk. The lower disk of each of the alternative secondary references is further of a diameter that is greater in size than the central opening in the upper disk. It would have been obvious for an artisan at the time of the invention, to modify the impeller disks of Bouquet et al, to have a smaller lower disk that was at least as large as the central hole in the upper disk, in view of either Roland or Jounela et al, since such would influence the flow of the gas loaded liquid toward the bottom of the vessel, thereby increasing the residence time of the gas within the liquid by countering the buoyant tendency of the gas bubbles in the gas/liquid mixture.

5. Claims 9, 10, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouquet et al taken in view of Ahlstrom.

Bouquet et al (Fig. 1) substantially disclose applicant's invention as recited by instant claims 9, 10, 12, and 14-16, except for the lower disk of the impeller having less

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surface area than the upper disk of the impeller, the lower disk being of a smaller diameter than the upper disk or the lower disk being at least partially cut out.

Ahlstrom (Fig. 3) discloses an impeller having vanes (23) and an upper disk (20,20b) and a lower disk (6,16) of smaller diameter than the upper disk. The lower disk of Ahlstrom is also disclosed as having a cut out area (10). It would have been obvious for an artisan at the time of the invention, to modify the impeller disks of Bouquet et al. to have a smaller diameter lower disk than the upper disk diameter or a lower disk with a cut out, in view of Ahlstrom, since such would influence the flow of the gas loaded liquid toward the bottom of the vessel, thereby increasing the residence time of the gas within the liquid by countering the buoyant tendency of the gas bubbles in the gas/liquid mixture.

Allowable Subject Matter

6. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

- 7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- 8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey Primary Examiner Art Unit 1724

csb 6-8-07